

エネルギー単位換算表

	J	Hz	cm ⁻¹	eV	meV	kcal/mol	a.u.	K	nm
1 J	1	1.50919E+33	5.03412E+22	6.24151E+18	6.24151E+21	1.43930E+20	2.29368E+17	7.24292E+22	1.98644E-16
1 Hz	6.62607E-34	1	3.33564E-12	4.13567E-15	4.13567E-12	9.53710E-14	1.51980E-16	4.79921E-11	2.99792E+17
1 THz	6.62607E-22	1E+12	3.33564	4.13567E-03	4.13567	9.53710E-02	1.51980E-04	4.79921	2.99792E+05
1 cm ⁻¹	1.98644E-23	2.99793E+11	1	1.23984E-04	0.123984	2.85920E-03	4.55640E+06	1.43877	1.00000E+07
1 eV	1.60218E-19	2.41799E+14	8.06556E+03	1	1000	23.06000	0.03675	1.16044E+05	1239.84000
1 kcal/mol	6.94782E-21	1.04854E+13	3.49748E+02	0.04337	43.37	1	1.59360E-03	5.03220E+02	28590.7104
1 a.u.	4.35981E-18	6.57981E+15	2.19472E+07	27.21162	27212	6.27510E+02	1	3.15780E+05	45.56288
1 K	1.38066E-23	2.08368E+10	0.69504	8.61742E-06	0.00862	1.98720E-03	3.16676E-06	1	143875993
1 nm	5.03413E+15	3.33565E-18	1.00000E-07	8.06556E-04	0.80656	3.49764E-05	2.19477E-02	6.9504E-09	1

レーザー波長換算表(original)

OMEC	nm	nm/1ch	eV	meV/1ch
0	729.97		1.698	
-500	737.53	0.0151	1.681	0.0348
-1000	745.09	0.0151	1.664	0.0341
-1500	752.56	0.0149	1.647	0.0330
-2000	759.94	0.0148	1.631	0.0320
-2500	767.15	0.0144	1.616	0.0307
-3000	774.35	0.0144	1.601	0.0301
-3500	781.37	0.0140	1.587	0.0288
-4000	788.22	0.0137	1.573	0.0276

物理定数表

c	2.997924580E+08	m/s
μ0	1.256637061E-06	Ns ² /C ²
ε0	8.854187817E-12	C ² /Nm ²
α	7.297353080E-03	
α ⁻¹	137.03599	
e	1.602177330E-19	C
h	6.626075500E-34	Js
H	1.054572660E-34	Js
N	6.022136700E+23	1/mol
amu	1.660540200E-27	kg
me	9.109389700E-31	kg
mp	1.672623100E-27	kg
mn	1.674928600E-27	kg
mp/me	1836.15270	
e/me	1.758819620E+11	C/kg
F	9.648530900E+04	C/mol
Rinf	1.097373153E+07	1/m
a0	5.291772490E-11	m
r0	2.817940920E-15	m
μB	9.274015400E-24	J/T
μe	9.284770100E-24	J/T
μn	5.050786600E-27	J/T
λc	2.463105800E-12	m
λcp	1.321410020E-15	m
R0	8.314510000E+03	J/kmolK
k	1.380658000E-23	J/K
σ	5.670510000E-08	Wk ⁴ /m ²
G	6.672590000E-11	Nm ² /kg ²
Ratm	8.205610000E-02	latm/Kmol
KtoC	273.16	K

波長換算表

nm	eV	ΔmeV/nm	THz	ΔGHz/nm
650	1.907		461.2	
660	1.878	2.890	454.2	698.8
670	1.850	2.804	447.4	677.9
680	1.823	2.721	440.9	658.0
690	1.797	2.642	434.5	638.9
700	1.771	2.567	428.3	620.7
710	1.746	2.495	422.2	603.2
720	1.722	2.425	416.4	586.4
730	1.698	2.359	410.7	570.4
740	1.675	2.295	405.1	554.9
750	1.653	2.234	399.7	540.1
760	1.631	2.175	394.4	525.9
770	1.610	2.119	389.3	512.3
780	1.589	2.064	384.3	499.1
790	1.569	2.012	379.5	486.5
800	1.550	1.962	374.7	474.3
810	1.531	1.913	370.1	462.6
820	1.512	1.867	365.6	451.3
830	1.494	1.822	361.2	440.5
840	1.476	1.778	356.9	430.0
850	1.459	1.736	352.7	419.9

分光器波長校正表 1200/790 (original)

1200gr	nm	nm/ch	eV	meV/ch
1300	801.36		1.547	
1250	800.46	0.0179	1.549	0.035
1200	799.56	0.0180	1.551	0.035
1150	798.66	0.0180	1.552	0.035
1100	797.76	0.0180	1.554	0.035
1050	796.86	0.0180	1.556	0.035
1000	795.96	0.0180	1.558	0.035
950	795.06	0.0180	1.559	0.035
900	794.16	0.0181	1.561	0.035
850	793.25	0.0181	1.563	0.036
800	792.35	0.0181	1.565	0.036
750	791.44	0.0181	1.567	0.036
700	790.54	0.0181	1.568	0.036
650	789.63	0.0181	1.570	0.036
600	788.72	0.0182	1.572	0.036
550	787.81	0.0182	1.574	0.036
500	786.90	0.0182	1.576	0.036
450	785.99	0.0182	1.577	0.037
400	785.08	0.0182	1.579	0.037
350	784.17	0.0182	1.581	0.037
300	783.25	0.0183	1.583	0.037
250	782.34	0.0183	1.585	0.037
200	781.43	0.0183	1.587	0.037
150	780.51	0.0183	1.588	0.037
100	779.59	0.0183	1.590	0.037
50	778.68	0.0183	1.592	0.037
0	777.76	0.0184	1.594	0.038

ファブリーペロー干渉縞間隔換算表 (n>1なら ÷n [GHz], ×n [nm])

mm	ps	GHz	meV	nm(790nm)
0.5	3.3	300	1.241	0.617
1.0	6.7	150	0.620	0.308
1.5	10.0	100	0.414	0.206
2.0	13.3	75	0.310	0.154
2.5	16.7	60	0.248	0.123
3.0	20.0	50	0.207	0.103

AlxGa1-xAs Band Gap Energy and n_x,T dependence(dE = 1.247)

x/T	0	10	30	100	300	n(dn=0.62)
0	1.519	1.519	1.517	1.501	1.422	3.500
0.01	1.531	1.531	1.529	1.514	1.435	3.494
0.02	1.544	1.544	1.542	1.526	1.447	3.488
0.03	1.556	1.556	1.554	1.539	1.460	3.481
0.04	1.569	1.569	1.567	1.551	1.472	3.475
0.05	1.581	1.581	1.579	1.564	1.485	3.469
0.07	1.606	1.606	1.604	1.589	1.510	3.457
0.1	1.644	1.643	1.642	1.626	1.547	3.438
0.33	1.931	1.930	1.928	1.913	1.834	3.295
0.45	2.080	2.080	2.078	2.062	1.984	3.221
0.5	2.145	2.145	2.143	2.128	2.050	3.190

温度換算表

T	meV	nm(790nm)
0	0.00	0.00
5	0.43	0.21
10	0.86	0.43
15	1.29	0.64
20	1.72	0.86
25	2.15	1.07
30	2.59	1.28
35	3.02	1.50
40	3.45	1.71
45	3.88	1.93
50	4.31	2.14

分光器波長校正表 300/790 (original)

300gr	nm	nm/ch	eV	meV/ch
1300	844.28		1.468	
1250	839.97	0.0861	1.476	0.151
1200	835.67	0.0861	1.484	0.152
1150	831.36	0.0861	1.491	0.154
1100	827.05	0.0862	1.499	0.155
1050	822.74	0.0862	1.507	0.157
1000	818.43	0.0862	1.515	0.159
950	814.12	0.0862	1.523	0.160
900	809.81	0.0862	1.531	0.162
850	805.50	0.0863	1.539	0.164
800	801.18	0.0863	1.547	0.166
750	796.86	0.0863	1.556	0.168
700	792.55	0.0863	1.564	0.169
650	788.23	0.0864	1.573	0.171
600	783.91	0.0864	1.582	0.173
550	779.59	0.0864	1.590	0.175
500	775.27	0.0864	1.599	0.177
450	770.94	0.0865	1.608	0.179
400	766.62	0.0865	1.617	0.181
350	762.30	0.0865	1.626	0.184
300	757.97	0.0865	1.636	0.186
250	753.64	0.0866	1.645	0.188
200	749.31	0.0866	1.655	0.190
150	744.98	0.0866	1.664	0.192
100	740.65	0.0866	1.674	0.195
50	736.32	0.0866	1.684	0.197
0	731.99	0.0867	1.694	0.199

nm	816.2	816.3	817.3	825.9	871.6
	809.5	809.7	810.6	819.1	864.0
	803.0	803.1	804.1	812.4	856.6
	796.6	796.7	797.6	805.8	849.2
	790.2	790.4	791.3	799.3	842.0
	784.0	784.1	785.0	792.9	835.0
	771.8	772.0	772.8	780.5	821.2
	754.3	754.4	755.2	762.5	801.3
	642.2	642.3	642.9	648.2	676.0
	596.0	596.1	596.6	601.2	625.0
	577.9	578.0	578.4	582.6	604.8

Nominal Optical Density

-log(T)	10 ^{-log(-OD)}
0.10	79.43
0.15	70.79
0.20	63.10
0.30	50.12
0.40	39.81
0.50	31.62
0.60	25.12
0.70	19.95
0.80	15.85
0.90	12.59
1.00	10.00
1.30	5.01
1.50	3.16
2.00	1.00
2.50	0.32
3.00	0.10
4.00	0.01

長さ単位換算表

m	cm	inch	foot	yard	
1 m	100	39.4	472	1.1	
1 cm	0.01	0.39	4.72	0.011	
1 inch	0.025	2.54	1	0.028	
1 foot	0.305	30.48	12	0.333	
1 yard	0.914	91.44	36	1	
1 mile	1609	160934	63360	5280	1760

free spectrum range (n>1なら÷n)

mm	FSR(GHz)	FSR(meV)
0.5	299.8	1.240
1.0	149.9	0.620
1.5	99.9	0.413
2.0	74.9	0.310
2.5	60.0	0.248
3.0	50.0	0.207
4.0	37.5	0.155
5.0	30.0	0.124
10.0	15.0	0.062
100.0	1.5	0.006
1000.0	0.1	0.0006

フィネス

R	F
0.1	1.10
0.2	1.76
0.3	2.46
0.4	3.31
0.5	4.44
0.6	6.08
0.7	8.76
0.8	14.05
0.9	29.80
0.95	61.24
0.99	312.58

レーザー縞間隔

n	dλ (nm)	dE(meV)
0.5	1.248	2.511
1.0	0.624	1.256
1.5	0.416	0.837
2.0	0.312	0.628
2.5	0.250	0.502
3.0	0.208	0.419
3.5	0.178	0.359
4.0	0.156	0.314
4.5	0.139	0.279
5.0	0.125	0.251
5.5	0.113	0.228

GaAsフェルミエネルギーと電子密度の次元性(m*=0.067me)

Ef (meV)	1D n (cm ⁻¹)	2D n (cm ⁻²)	3D n (cm ⁻³)
0.05	5.97E+04	3.56E+09	2.13E+14
0.10	8.44E+04	7.13E+09	6.02E+14
0.15	1.03E+05	1.07E+10	1.11E+15
0.20	1.19E+05	1.43E+10	1.70E+15
0.25	1.33E+05	1.78E+10	2.38E+15
0.30	1.46E+05	2.14E+10	3.13E+15
0.40	1.69E+05	2.85E+10	4.81E+15
0.50	1.89E+05	3.56E+10	6.73E+15
0.60	2.07E+05	4.28E+10	8.84E+15
0.70	2.23E+05	4.99E+10	1.11E+16
0.80	2.39E+05	5.70E+10	1.36E+16
0.90	2.53E+05	6.41E+10	1.62E+16
1.00	2.67E+05	7.13E+10	1.90E+16
1.20	2.92E+05	8.55E+10	2.50E+16
1.40	3.16E+05	9.98E+10	3.15E+16
1.60	3.38E+05	1.14E+11	3.85E+16
1.80	3.58E+05	1.28E+11	4.59E+16
2.00	3.78E+05	1.43E+11	5.38E+16
2.20	3.96E+05	1.57E+11	6.21E+16
2.40	4.14E+05	1.71E+11	7.07E+16
2.60	4.30E+05	1.85E+11	7.98E+16
2.80	4.47E+05	2.00E+11	8.91E+16
3.00	4.62E+05	2.14E+11	9.89E+16
3.20	4.78E+05	2.28E+11	1.09E+17
3.40	4.92E+05	2.42E+11	1.19E+17
3.60	5.07E+05	2.57E+11	1.30E+17
3.80	5.20E+05	2.71E+11	1.41E+17
4.00	5.34E+05	2.85E+11	1.52E+17
5.00	5.97E+05	3.56E+11	2.13E+17
6.00	6.54E+05	4.28E+11	2.80E+17
7.00	7.06E+05	4.99E+11	3.52E+17
8.00	7.55E+05	5.70E+11	4.31E+17
9.00	8.01E+05	6.41E+11	5.14E+17
10.00	8.44E+05	7.13E+11	6.02E+17
11.00	8.85E+05	7.84E+11	6.94E+17
12.00	9.25E+05	8.55E+11	7.91E+17
13.00	9.63E+05	9.27E+11	8.92E+17
14.00	9.99E+05	9.98E+11	9.97E+17
15.00	1.03E+06	1.07E+12	1.11E+18
16.00	1.07E+06	1.14E+12	1.22E+18
17.00	1.10E+06	1.21E+12	1.33E+18
18.00	1.13E+06	1.28E+12	1.45E+18
19.00	1.16E+06	1.35E+12	1.58E+18
20.00	1.19E+06	1.43E+12	1.70E+18

開口数(λ=790nm)

N.A.	分解能 μm	焦点深度	像の明るさ
N.A.			
0.1	3.95	39.500	0.01
0.2	1.98	9.875	0.04
0.3	1.32	4.389	0.09
0.4	0.99	2.469	0.16
0.5	0.79	1.580	0.25
0.6	0.66	1.097	0.36
0.7	0.56	0.806	0.49
0.8	0.49	0.617	0.64
0.9	0.44	0.488	0.81
1.0	0.40	0.395	1
1.1	0.36	0.326	1.21
1.2	0.33	0.274	1.44
1.3	0.30	0.234	1.69
1.4	0.28	0.202	1.96

光パワー

μW	photon個/s	spot:1 μm 個/s·cm ²	carrier ? 個/cm
1000	4.0E+15	4.0E+21	8.4E+06
100	4.0E+14	4.0E+20	8.4E+05
10	4.0E+13	4.0E+19	8.4E+04
1	4.0E+12	4.0E+18	8.4E+03
0.1	4.0E+11	4.0E+17	8.4E+02
0.01	4.0E+10	4.0E+16	8.4E+01
1.0E-03	4.0E+09	4.0E+15	8.4E+00